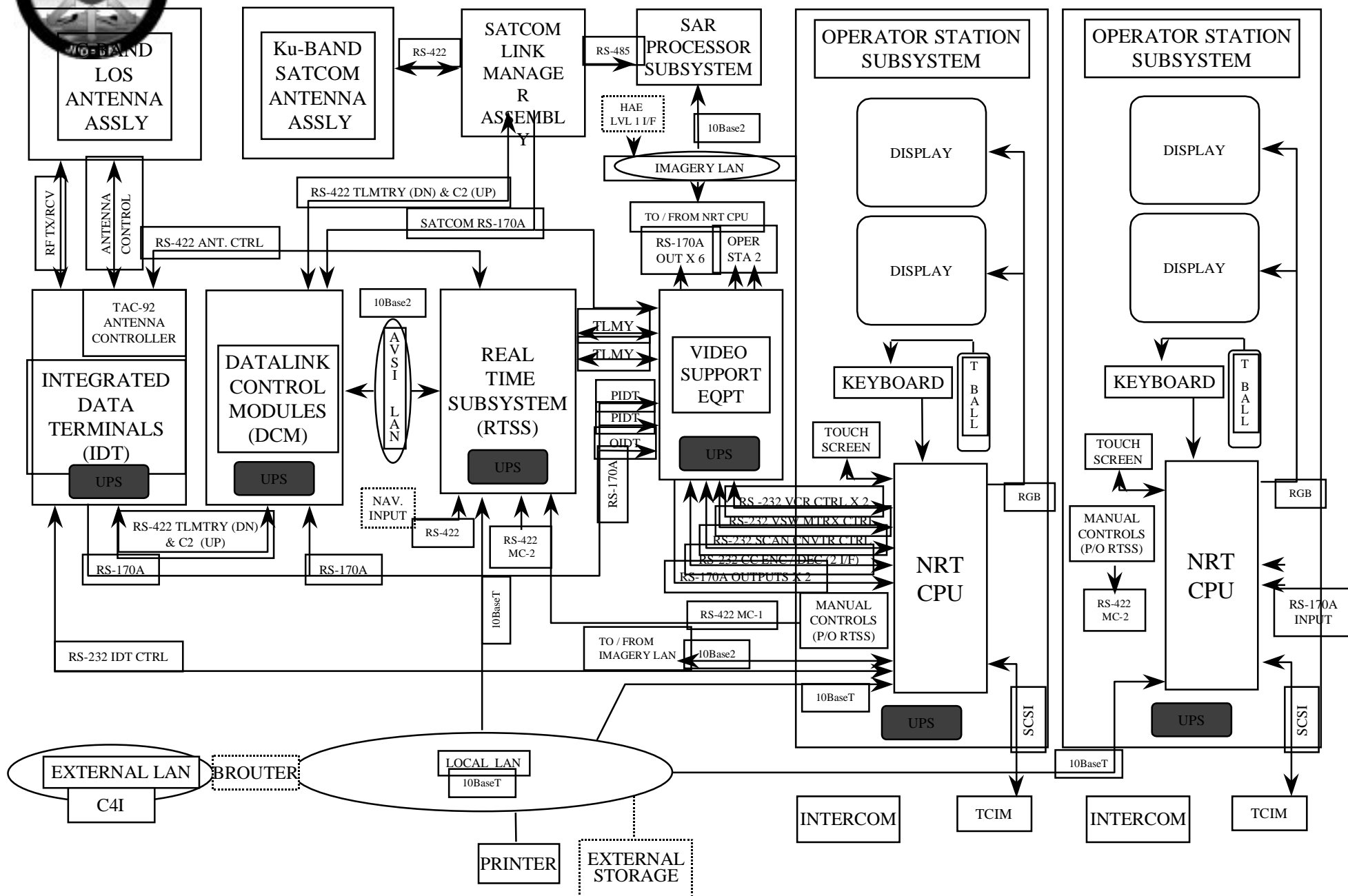




POWER DISTRIBUTION SUBSYSTEM HWCI SEA BASED

TCS POWER DISTRIBUTION HARDWARE DESIGN





POWER DISTRIBUTION HWCI SSDD REQUIREMENT TO EB ALLOCATION

- REQUIREMENTS MATRIX SUMMARY
 - 18 Total SSDD Requirements
 - HWCI Requirements to EB Allocation
 - 24 With EB1
 - 6 With EB5



POWER DISTRIBUTION OPERATIONAL ENVIRONMENTAL CONSIDERATIONS

- UPS/PDU Installed in Ruggedized rack.
- Compatible with Commercial Red Standards
 - Red: Combat with Severe Temperature and Shock Extremes
- Required to Meet the Following MIL-STDs
 - MIL-S-901D Shock Tests
 - MIL-STD-167-1 Shipboard Vibration
 - MIL-STD-810E Temperature/Humidity



POWER DISTRIBUTION ELECTROMAGNETIC COMPATIBILITY CONSIDERATIONS

- UPS/PDU Installed in Ruggedized rack.
- Electromagnetic Interference (EMI), Emissions
 - Required to Meet RE101, 102, CE101 and 102 in Accordance with MIL-STD-461 for Surface Ship and Submarines
 - Tested in Accordance with MIL-STD-462
- Electromagnetic Interference (EMI), Susceptibility
 - Required to Meet CS101 and RS101 in Accordance with MIL-STD-461 for Surface Ships and Submarines
 - Tested in Accordance with MIL-STD-462



POWER DISTRIBUTION HWCI PRELIMINARY DESIGN DESCRIPTION

- The Power Distribution Subsystem HWCI consists of the components necessary to condition and provide the appropriate power to the various components of TCS.
- Uninterruptible Power Supply (UPS) HWCI
 - Power Distribution Unit (PDU)
 - Power Distribution HWCI

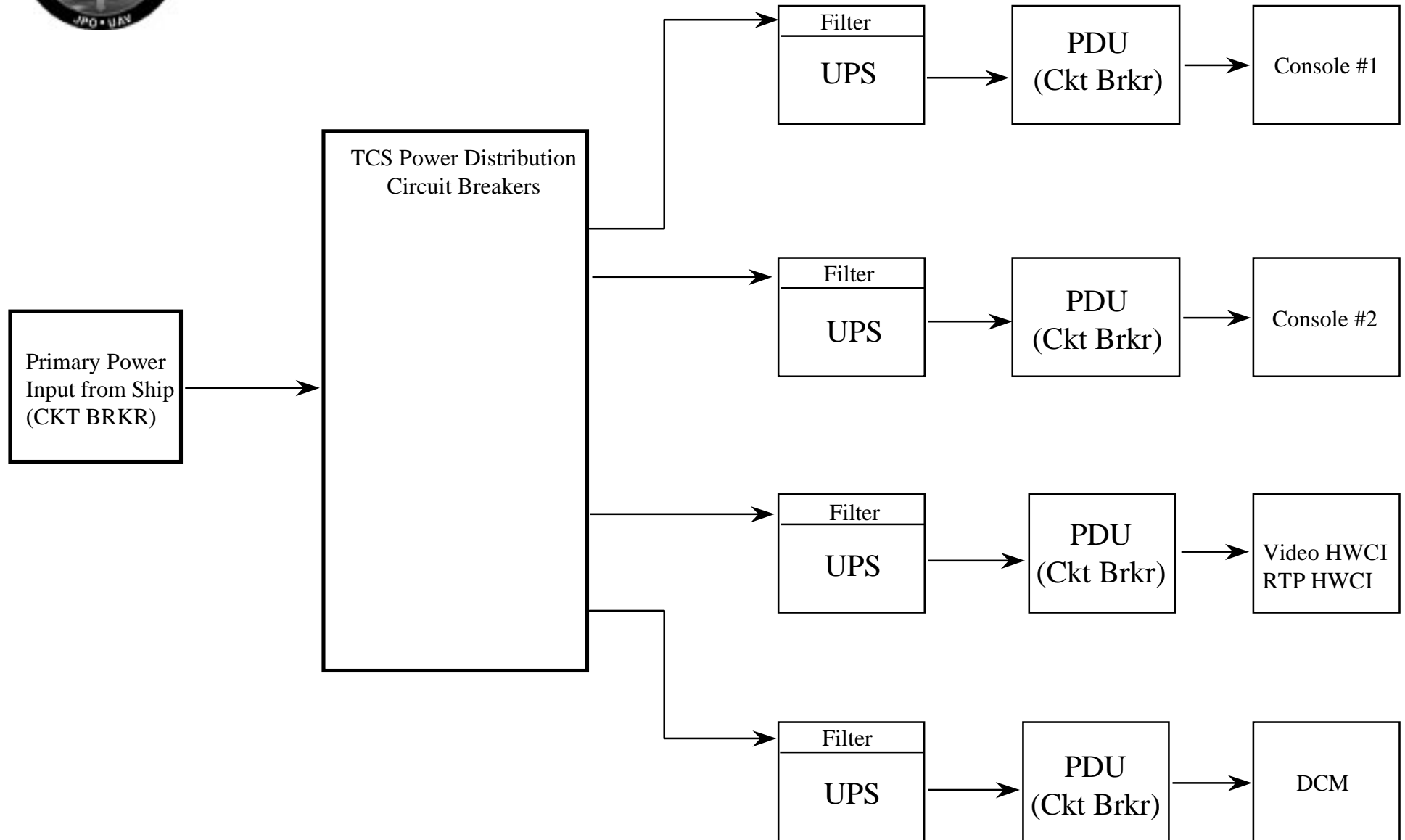


POWER DISTRIBUTION HWCI PRELIMINARY DESIGN DESCRIPTION

- Functional Description
 - UPS: The UPS provides on-line conditioned 115Vac power to TCS components, and upon loss of input power, a battery powered protected power source.
 - PDU: The PDU provides power distribution, management, and communications between UPS and TCS component loads.
 - Power Distribution: The Power Distribution will accept primary power and provide the necessary interfaces to UPS of the various TCS components.



POWER DISTRIBUTION HWCI OVERVIEW/DESCRIPTION OF OPERATION





POWER DISTRIBUTION HWCI OVERVIEW/DESCRIPTION

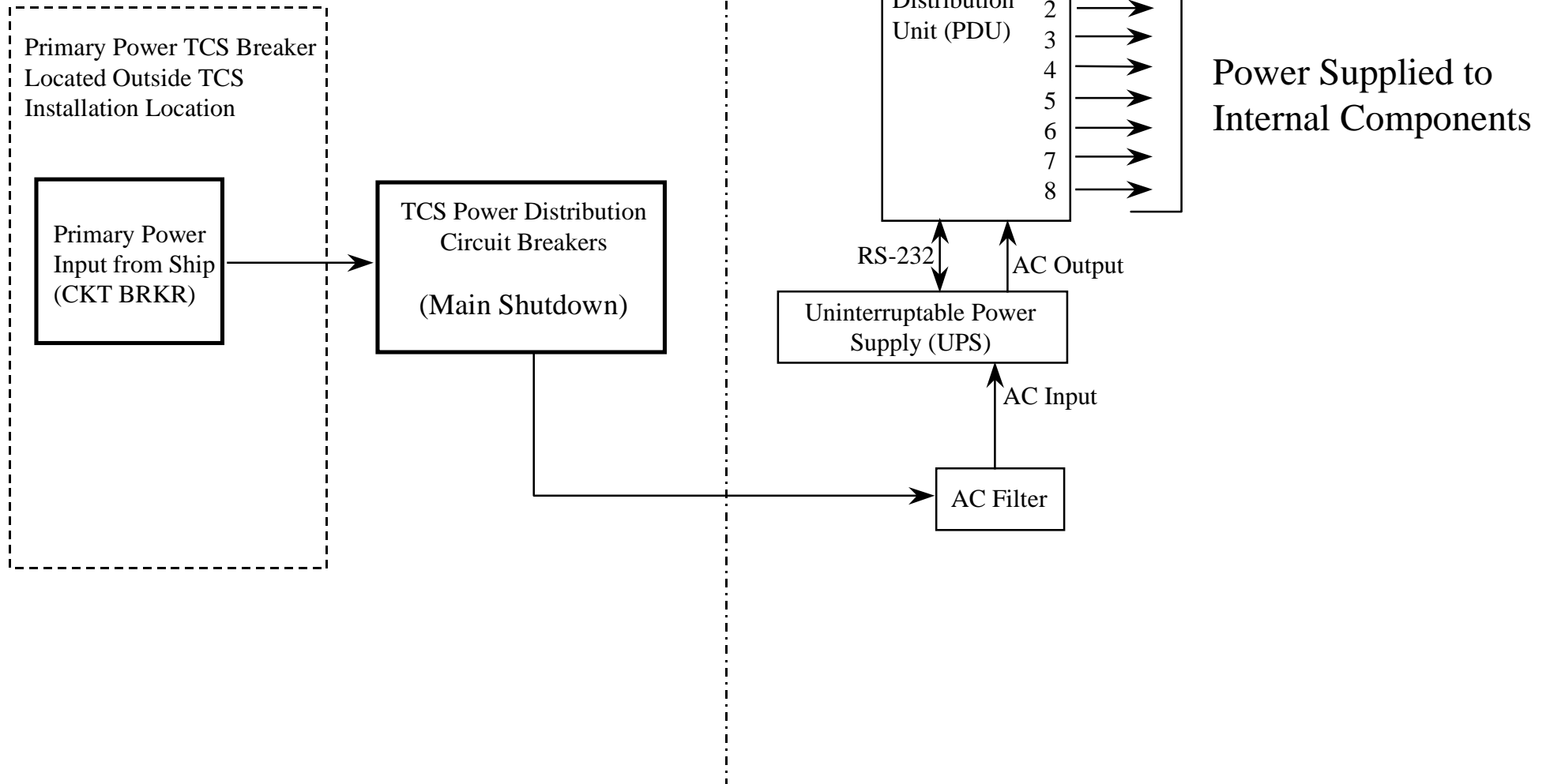


- UPS
 - Power Input of 115/230 VAC at 47-64 Hz
 - Provides Conditioned 115 VAC with Battery Backup
 - Rated at 15min Backup Power at 1500W
- Power Distribution Unit (PDU)
 - Receives Input Power from UPS
 - Provides Eight 115VAC/15A Receptacles
 - Provides +5 and +12 V



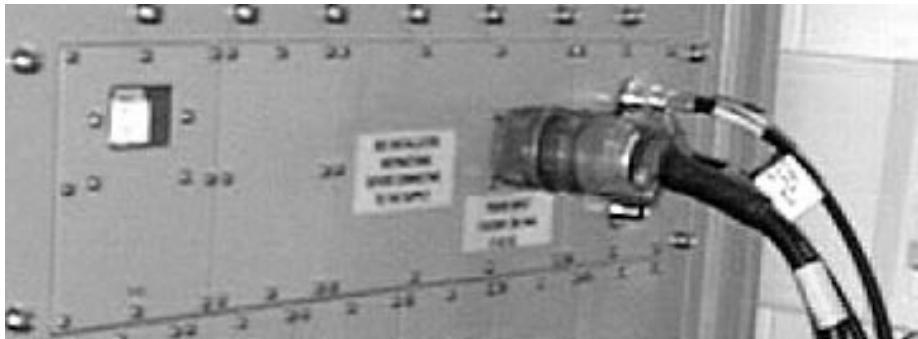


POWER DISTRIBUTION HWCI INTERFACES





POWER DISTRIBUTION HWCI INTERFACES EXTERNAL I/O

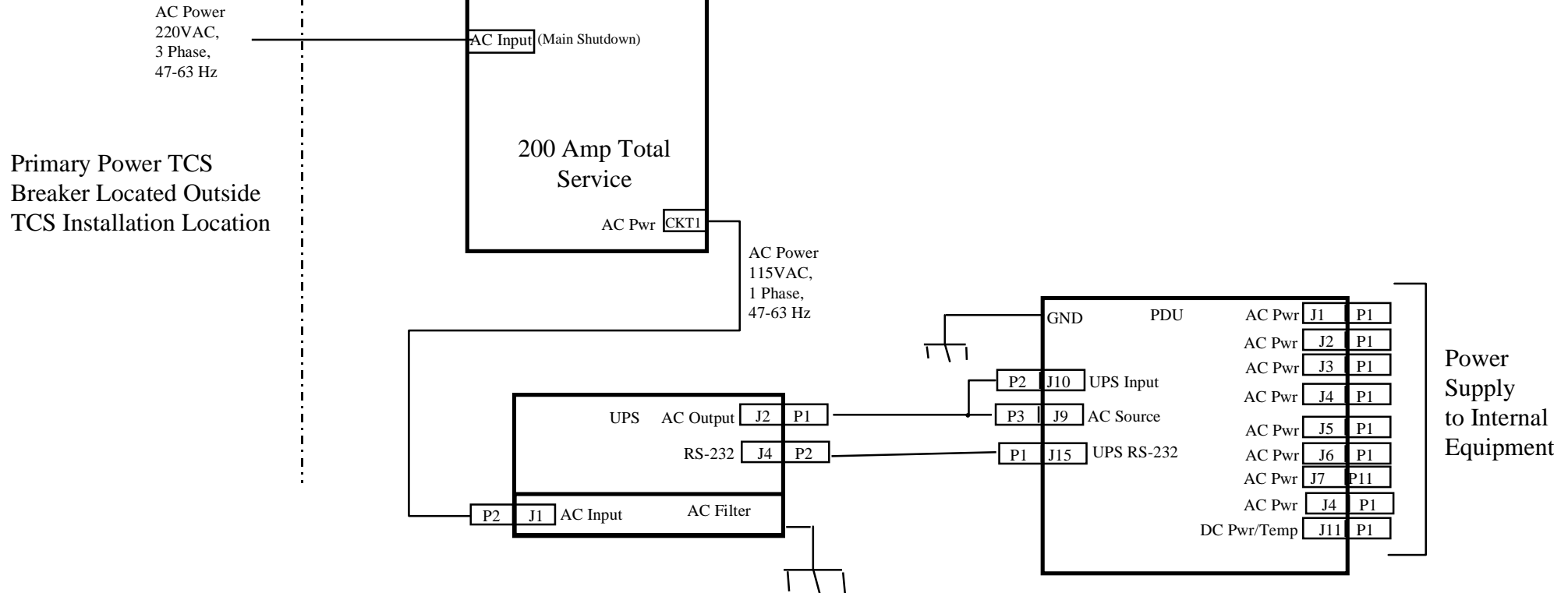


TAC-4 I/O Panel

- Power Input
 - 120v, 60Hz



POWER DISTRIBUTION PRELIMINARY DESIGN DRAWINGS





POWER DISTRIBUTION IDENTIFICATION OF COTS/NDI ITEMS

- COTS Equipment
 - TCS Power Circuit Breaker Panel
 - Interconnection Wiring
- NDI Equipment
 - TAC-4 Contract UPS
 - TAC-4 Contract PDU



POWER DISTRIBUTION PACKAGING IDENTIFICATION

- Commercially Ruggedized to Environmental Red Standards
 - Red: Shipboard and Submarine combat. Intended for combat situations where survival of mission critical systems is paramount.



POWER DISTRIBUTION PHYSICAL DATA

- UPS
 - Height = 6 inches
 - Width = 19 inches
 - Depth = 31.5 inches
 - Weight = 185 lbs
- PDU
 - Height = 3.5 inches
 - Width = 19 inches
 - Depth = 12.6 inches
 - Weight = 12 lbs



POWER DISTRIBUTION POWER REQUIREMENTS

- Uninterruptable Power Supply (UPS)
 - Input Power of 115/230 VAC at 47-64 Hz
 - Provides On-Line Conditioned 115 VAC with Battery Backup
 - Rated at 15min Backup Power at 1500W



POWER DISTRIBUTION POWER MEASUREMENTS

| Qty | Item | Measured Values | | | | Notes |
|-----|-------------------|-----------------|---------|--------|---------|----------------------|
| | | Amp (P) | Amp (O) | V | W(est.) | |
| 1 | Video/VME Rack | 5.64 | 3.64 | 114.30 | 416.05 | |
| 2 | TAC-4 Workstation | 7.50 | 7.40 | 116.90 | 865.06 | Values per Rack |
| 1 | (2) DCM Rack | 10.10 | | 115.00 | 1161.50 | MAX Values per Spec. |
| 1 | PDCM | 2.60 | 2.50 | 115.00 | 287.50 | Measured |
| 1 | ODCM | 5.05 | | 115.00 | 580.75 | MAX Values per Spec. |

Legend p = peak amps on startup

o = operating amps

w = Watts



POWER DISTRIBUTION

POWER BACKUP

- Total Power Utilized
 - 416.05 Watts Overall for Video/VME Rack (Measured)
 - 865.06 Watts Overall for each TAC-4 Rack (Measured)
 - 1161.50 Watts Overall for DCM Rack (Per Specification)
- UPS Rated for 15 min @ 1500 Watts
 - Video/VME Rack Backup of 54 min
 - TAC-4 Rack Backup of 26 min for each Rack
 - DCM Rack Backup of 28 min (2 UPS Installed)
 - PDCM Backup of 78 min
 - ODCM Backup of 28 min based on MAX Specification



POWER DISTRIBUTION IDENTIFICATION OF SUPPORT EQUIPMENT

- NO SPECIALIZED MAINTENANCE
EQUIPMENT OR MATERIALS REQUIRED TO
MAINTAIN EQUIPMENT